127. In a circuit for powering a load, said circuit comprising a self-oscillating inverter adapted to provide an AC voltage across a pair of output terminals, the improvement comprising:

a series-combination of an inductor and a capacitor connected across said pair of output terminals, said series-combination having a natural resonance frequency;

connect means for connecting said load in circuit with said series-combination; and

feedback means connected in circuit with said series-combination and operative to cause said inverter to self-oscillate at a frequency higher than said natural resonance frequency, said feedback means comprising saturable inductor means.

CONCLUDING REMARKS

Applicant wishes to draw Examiner's attention to the fact that one of the main patentable aspects of subject application relates to the important and basic proposition of having a self-oscillating inverter loaded with a resonant circuit, yet at the same time making this inverter self-oscillate at a frequency that is different from the natural resonance frequency of that resonant circuit.

Of course, with a self-oscillating inverter having a resonant circuit in its positive feedback path, it should be expected that the frequency of oscillation be substantially equal to the natural resonance frequency of that resonant circuit. Yet, in Applicant's circuit, such is not the case -- the reason being that of providing in the positive feedback path an additional timing (or frequency-determining) element in the form of saturable transformer means.

Applicant contends that to accomplish the clearly unexpected result of having a self-oscillating inverter loaded with a resonance circuit, yet self-oscillating at a frequency different from the natural resonance frequency of this resonance circuit, is indeed highly unusual as well as non-obvious -- both in terms of motivation as well as in terms of implementation.

Examiner is requested to look at the waveforms associated with Rhoads' invention (see his Fig. 3) in comparison with those associated with Applicant's invention.

In particular, Examiner is asked to note the following.

a) Rhoads' inverter output current as shown in his Fig. 3B is substantially in phase with the inverter output voltage of his Fig. 3A and is definitely not sinusoidal.

b) Applicant's inverter output current as shown in his Fig. 3D is delayed in phase compared with the inverter output voltage of his Fig. 3A and is substantially sinusoidal.

The fact that the current is delayed in respect to the voltage implies that the net effective impedance offered by the LC series-combination to the inverter output is inductive; which further implies that the frequency of the inverter voltage is lower than the natural resonance frequency of the LC series-combination. Of course, had the LC series-combination been in resonance at the inverter frequency, there would have been no delay between the inverter output voltage and the resulting current.

Also, Examiner is asked to note that Rhoads' circuit does not constitute a self-oscillating inverter.

Based on the arguments and amendments provided hereinabove, Applicant believes that all the claims as presently constituted are allowable over the cited art. However, if Examiner is still disposed toward a contrary opinion, Applicant requests that Examiner call Applicant on the telephone before formulating a final decision; thereby, in the interest of efficiency of prosecution, to attempt to arrive at an expeditious and mutually satisfactory disposition of subject application.

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